

Subject: Scope of Practice/Procedure - ALS
Epinephrine (Adrenalin)

Associated Policies:

- I. Class
 - A. Naturally occurring catecholamine with alpha- and beta-adrenergic effects.
- II. Indications
 - A. Anaphylactic shock.
 - B. Acute asthma.
 - C. Cardiac arrest.
 - D. Bradycardia refractory to atropine.
 - E. Treatment of shock with profound hypotension from any cause unresponsive to fluid resuscitation.
 - F. Severe croup.
- III. Therapeutic Effects
 - A. Bronchodilator.
 - B. Maintains blood pressure.
 - C. Stimulates spontaneous contractions of myocardium.
 - D. Increases myocardial tone.
- IV. Contraindications
 - A. Absolute:
 - 1. None.
 - B. Relative:
 - 1. Use with cautions in persons over 40 years of age or known ischemic heart disease.
- V. Adverse Effects
 - A. Tachycardia.
 - B. Palpitations.
 - C. Tremors.
- VI. Administration and Dosage
 - A. Anaphylactic shock:
 - 1. Adult: (IM)
 - a. Epinephrine 1:1,000 0.3mg - 0.5 mg IM to lateral thigh, may repeat every 15 minutes as necessary.
 - 2. Adult (Push Dose) (IV/IO)
 - a. Dilute 0.1mg (1ml) of Epinephrine 1:10,000 with 9ml of normal saline. Mix well.
 - b. Administer 10mcg(1ml) “pushes” IV/IO every 2-3 minutes to a target blood pressure of 90 mmHg.

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2. Pediatric:
 - a. Epinephrine 1:1,000 - 0.01 mg/kg (maximum dose 0.5 mg) IM to lateral thigh.
 - b. Push Dose Epinephrine (IV/IO): Dilute 0.1mg(1ml) of Epi 1:10,000 in 9cc of normal saline. Administer 1mcg/kg (0.1ml/kg) IV/IO maximum single dose of 5mcg. Repeat every 3-5 minutes.
- B. Asthma:
 1. Adult:
 - a. Epinephrine 1:1,000 - 0.01 mg/kg IM to lateral thigh (maximum single dose 0.5 mg). May repeat in 20 minutes.
 2. Pediatric:
 - a. Epinephrine 1:1,000 - 0.01 mg/kg IM to lateral thigh (maximum single dose 0.5 mg). May repeat in 20 minutes.
- C. Cardiac Arrest:
 1. Adults:
 - a. Epinephrine 1:10,000 - 1 mg IV or IO every 3 to 5 minutes.
 2. Pediatric:
 - a. Epinephrine 1:10,000 - 0.01 mg/kg, IV or IO.
- D. Severe Bradycardia and/or Hypotensive Shock State refractory to fluid resuscitation (May consider Push Dose Epinephrine or an Epinephrine drip)
 1. Adult: (Drip IV/IO)
 - a. Dilute 1mg Epinephrine 1:1,000 in 1000 ml of NS to mix a concentration of 1mcg/ml.
 - b. Initial infusion rate 2 mcg/minute titrated to the desired effect (average infusion dose range 2-10 mcg/min).Adult (Push Dose) (IV/IO)
 - a. Dilute 0.1mg(1ml) of Epinephrine 1:10,000 with 9ml of normal saline. Mix well.
 - b. Administer 10 mcg(1ml) "pushes" IV/IO every 2-3 minutes to a target blood pressure of 90 mmHg.
 2. Pediatric:
 - a. Hypotension refractory to fluid therapy and intermittent Epinephrine doses with extended transport time, administer Epinephrine drip or Push Dose Epinephrine.

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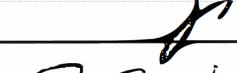
- b. Epinephrine Drip Dose (IV/IO) – Mix Epinephrine infusion and initiate at 0.03mcg/kg/minute.
Titrate to desire effect (relief of hypotension).
Typical dose range is 0.03-1mcg/kg/minute.
- c. Push Dose Epinephrine Dose: Dilute (0.1mg) 1ml of epinephrine 1:10,000 (1mg/10ml) with 9ml of normal saline.
Administer 1mcg/kg (0.1ml/kg) IV/IO. Maximum single dose of 5mcg (.5ml), repeat every 3-5 minutes.


E. Severe Croup:

- 1. Adult and pediatric:
 - a. Nebulize 5cc Epinephrine 1:1,000 via SVN without dilution. Do not repeat within 60 minutes.

VII. Special Information

- A. Incompatible with bicarbonate and furosemide solutions. Flush IV lines between injections.
- B. Endotracheal administration is no longer the preferred route of administration and should not be used.
- C. In the absence of Epinephrine 1:10,000 in prefilled syringes, Epinephrine 1:1,000 1mg/1mL may be diluted at the point of care:
 - 1. Draw up 1mg (1ml) Epinephrine 1:1,000.
 - 2. Draw up additional 9 ml normal saline mix well.
 - 3. Yields Epinephrine 1:10,000 1mg in 10 mL
- D. When mixing Push Dose Epinephrine, a preload of Epinephrine 1:10,000 is preferred. In the absence of a preloaded cardiac syringe, a cardiac dose needs to be mixed first as above.
 - 1. Draw up 0.1mg (1ml) of Epinephrine 1:10,000.
 - 2. Draw up additional 9ml of normal saline, mix well.
 - 3. Yields Epinephrine 1:100,000 or 10mcg/ml.
- E. When mixing an Epinephrine Drip:
 - 1. Draw up 1mg (1ml) Epinephrine 1:1000.
 - 2. Add to a 1000cc Normal Saline bag mix well.
 - 3. Yields Epinephrine 1:100,000 or 1mcg/ml.
- E. Always ensure prior to administration that the correct concentration has been achieved.

Approved:  Date: 11-5-19

Approved as to Form:  Date: 11-5-19